



GPS ESSENTIALS

Getting Started

2013-01-16

Covers Version 3.1.2

The latest version of this document is available at
<http://www.mictale.com/gpsessentials/download>

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Welcome

Welcome to GPS Essentials, the swiss army knife of GPS navigation on your Android phone. This document gives you a brief overview of what you can (and cannot) do with GPS Essentials. You will rarely find step-by-step instructions here. Please also have a look into the help pages available within the app if you run into problems.

When we started with GPS Essentials, Android was the new kid on the block and we wanted to see how cool it really is. So we put together a satellite sky view, a map and a waypoint database and called it GPS Essentials. Both Android and GPS Essentials grew up since then and while Android starts to dominate the mobile phone market we proudly present what we believe is the most universal GPS tool that you can get for your mobile device.

GPS Essentials is used by pedestrians, car drivers, motocyclists, mountainbikers, geocachers, pilots, geologists, sailors, truckers, farmers, fishermen, just to mention a few. When we receive feedback from our users we notice that they all have their specific requirements and demands. Still, we believe if you want to get from A to B then GPS Essentials can do better than most specialized apps.

This effort to write a guide to GPS Essentials comes from many user requests asking for more information than is accessible in the in-app help. This document is still in early stages but we thought it is already useful for users that are new to GPS Essentials and who are a bit overwhelmed by its complexity.

Get Familiar With Android

We are not teaching you how to use Android based phones and tablets but we will assume that you know how to handle your device. For example, when you export data to a file on your device, you have to know how to copy the file to a different location, such as your desktop computer. If you are an Android beginner, please take some time to dive into Android before you start using GPS Essentials.

GPS Essentials is one of the complex apps. Most apps deal with one specific thing and they do it well. If you have an app to find your car where you parked it, you will probably learn how to use this app while you are using it for the first time. You can also find your car with GPS Essentials, but things will be less intuitive. On the other hand, you can save the parking lot and get back there the next time you drive downtown.

Support

If things are not working as you expect, you can ask for help. Visit <http://www.gpsessentials.com> to check the latest information. You can navigate to our Facebook Page from there, download software and be part of the GPS Essentials community.

If you need a personal word, the easiest way is to send an email to support@mictale.com. We'll try to respond as soon as we can, please understand that we cannot guarantee response times.

Installation

The quickest way to install GPS Essentials is to scan the following QR-code with your device:



market://details?id=com.mictale.gpsessentials
<https://play.google.com/store/apps/details?id=com.mictale.gpsessentials>

The link will open the Google Play app on your phone so that you can download and install GPS Essentials with a few taps.

You can also download GPS Essentials from <http://www.gpsessentials.com> but this is only recommended if you don't have access to Google Play or if you want to download versions other than the stable release such as older versions or the latest beta.

If you are installing GPS Essentials from Google Play, you will receive updates as soon as they are available. If you downloaded GPS Essentials from a different source, you might have to care about updates yourself. The latest version of GPS Essentials usually contains important fixes, please ensure that you have the most recent version.

Database

GPS Essentials stores information in a database on your SD card and in application preferences. The database holds all objects that are relevant for navigation such as waypoints, tracks, routes, tags and messages. Since the database file resides on your SD card, GPS Essentials will not run while the SD card is mounted to your desktop computer.

The database is in the folder `com.mictale.gpsessentials` in the root of your SD card. You can copy this file to a different location to make backups of your data.

Start Screen

You see the start screen when you start the app. It contains icons to access all features of the app.

Some of the icons are related to data that GPS Essentials stores in its database. GPS Essentials handles waypoints, routes, tracks, pictures, messages and tags. Each of these data types has an icon associated with it so that you can see the elements, add new and delete existing. If you want to know more about these element types, refer to the appropriate section below.

The other icons are related to concepts that deal with more than one element type at a time or that does not store data.

We'll run through the features that are behind every icon in the course of this document.

If GPS is disabled on your device, you will notice a yellow banner warning. The banner has a link that you can tap to get directly to the system settings page to enable GPS.

Activities

GPS Essentials, as most other Android apps, separates its workflow into activities. Every activity has its own user interface screen. You start an activity by pressing a button or selecting a command from a menu. When you are done, the activity will finish and your previous activity will appear again. Use the back button to finish an activity at any time.

Think of the activities as a stack of cards: Every time you open a new activity, it will be pushed onto the top of the stack and you can work with it. When you are finished, the activity will be popped from the stack and you see the activity below it.

Sometimes you will get lost in the different activities as they stack on top of each other. All activities have a Home command in their options menu. If you select this command, you will get back to the start screen immediately.

Dashboard



This is a fullscreen area to place widgets that show you navigation information, such as your current speed or the distance to the next waypoint. You can configure which navigation values to show. Other views such as Compass and Map also show these values.

When you open the dashboard for the very first time, it is empty. Tap on any free cell and a dialog pops up. Select one of the elements and a small widget will be placed on the free cell.

Some of the widgets will show values immediately. Some others requires you to start a route first or they need a valid GPS fix to work properly.

Once you added the first widget, you'll notice that the actual dashboard is much larger than the screen and you can swipe the visible window on the full dashboard to make other cells visible.

If you want to move a widget to a different cell, tap and hold it. Once you notice a little buzz (if haptic feedback is enabled in your system settings), you can drag it to any other cell. You can also drag it to the trash can that appears once you started moving a widget.

You can tap on widgets to see some more information. Some widgets can be configured this way.

The contents of the widget are color-encoded: Yellow means the information is probably outdated or inaccurate. For example, the information is based on a GPS fix which is too old or the information is derived from a network location which is not very accurate. If the contents are white, then the data is up-to-date and accurate.

Here is a list of all available widgets:

Name	Description
Stop Watch #1	A count up timer that can be paused, resumed and reset.
Stop Watch #2	A count up timer that can be paused, resumed and reset.
Battery Level	The percentage of remaining battery capacity.
Battery Temperature	The temperature of the battery.
Battery Voltage	The voltage of the battery.
Number of Satellites	The number of satellites in view and the number of satellites considered for the latest fix.

Name	Description
Declination	The declination of the horizontal component of the magnetic field from true north, in degrees (i.e. positive means the magnetic field is rotated east that much from true north).
Speed	The horizontal velocity over ground.
Pace	The horizontal pace over ground, the reciprocal of velocity.
Course To	The direction from the current location to the target in degrees east of true or magnetic north, depending on your bearing settings.
Course From	The direction from the target to the current location in degrees east of true or magnetic north, depending on your bearing settings.
Turn	The angle between bearing and course. Turn left for negative values.
Tracking Speed	The velocity towards the tracking angle over ground.
True Speed	The velocity towards the target over ground.
Average Speed	The average velocity over ground.
Max Speed	The maximum velocity over ground.
<u>Min</u> Speed	The minimum velocity over ground.
Bearing	The direction of travel in degrees east of true or magnetic north, depending on your bearing settings.
Reverse Bearing	The reverse direction of travel in degrees east of true or magnetic north, depending on your bearing settings.
Time	The current time of day as reported by the GPS receiver. The time is in the local time zone.
UTC Time	The current time of day as reported by the GPS receiver. The time is in UTC.
Date	The current date.

Name	Description
Altitude	The altitude above (or below) main sea level. (Prior to Android 2.0 , this value is relative to the WGS84 ellipsoid).
Max Altitude	The maximum altitude above (or below) main sea level.
<u>Min</u> Altitude	The minimum altitude above (or below) main sea level.
Accuracy	The precision of the current fix as reported by the GPS receiver. Lower values indicate better reception. The more satellites are in view, the better this value will be.
Latitude	The latitude of the current fix.
Longitude	The longitude of the current fix.
Position	The coordinates of the current fix, either latitude and longitude or UTM.
Location Provider	The provider of the current location: Cell, Wifi or GPS.
Target	The latitude and longitude of the target. You can pick a new target or select one from the waypoint list.
Target Altitude	The altitude of the target. You can pick a new target or select one from the waypoint list.
Target Slope	The gradient between the current location and the target in percent. Positive values indicate ascending slope, negative descending. You can pick a new target or select one from the waypoint list.
Target Name	The name of the current target. You can pick a new target or select one from the waypoint list.
Distance	The distance between the current position and the target.
Σ Distance	The distance between the current position and the end of the running route.

Name	Description
Distance Covered	The distance traveled while GPS Essentials is in the foreground or tracking. You can reset this value.
Trip #1	A trip counter that measures distances and can be reset.
Trip #2	A trip counter that measures distances and can be reset.
Distance To	The distance between the current position and an arbitrary position. You can reset this value to select the current location.
Climb	The vertical velocity.
Altitude Made Good	The vertical distance between a starting point and the current position. You can reset this value to select the next received location as the new starting point.
Altitude To Go	The vertical distance between the current location and the target location.
TTG	The estimated time to go to the target.
Σ TTG	The estimated time to go to the end of the route.
ETA	The estimated time of arrival at the target.
Σ ETA	The estimated time of arrival at the end of the route.
Tracking Angle	A general purpose azimuth angle to track.
Sunrise	The local time of today's sunrise.
Sunset	The local time of today's sunset.
Moonrise	The local time of today's <u>moonrise</u> .
Moonsset	The local time of today's <u>moonset</u> .
Moon Phase	The moon phase indicating the 'age' of the moon. A cycle of the moon lasts 29.530588 days, starting and ending with new moon. The moon is presented as it shows up on the northern hemisphere. Down Under, stay tuned.

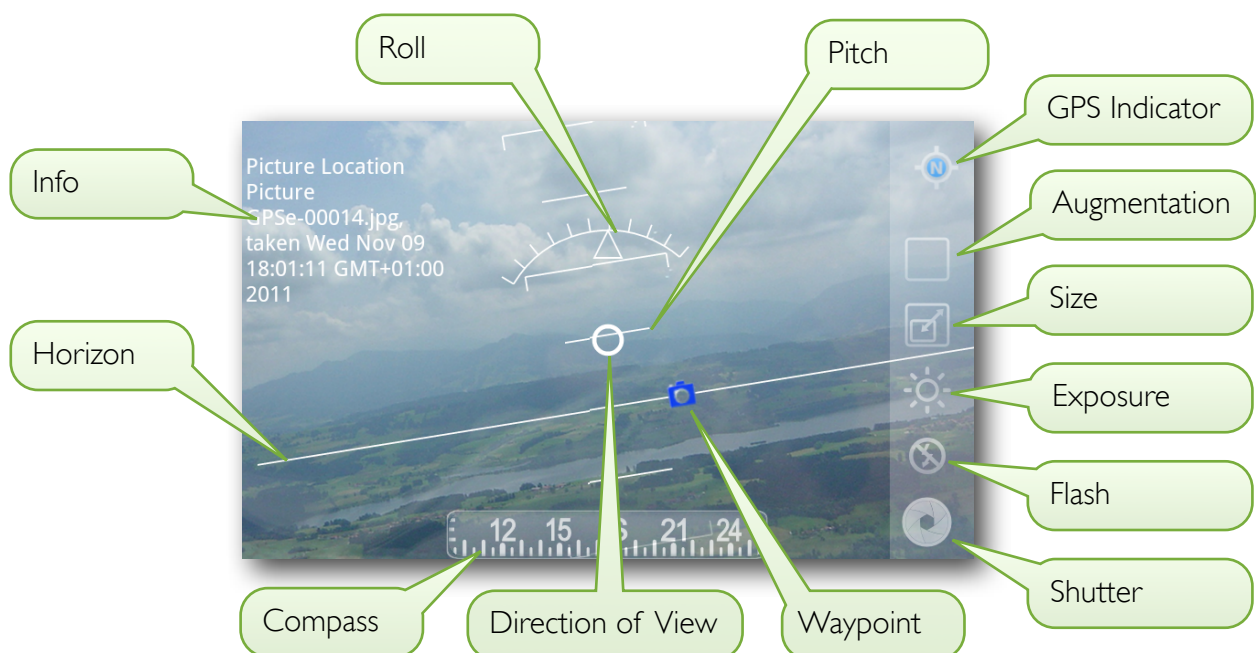


Camera

Shows a HUD (head up display) of your waypoints. You can also shoot images.

The HUD displays waypoints so that you can match them with landmarks. When a waypoint is close to the direction of view, additional info appears on the right side of the screen.

Directional indicators show you how the device is oriented: The compass shows the current azimuth angle. The vertical pitch scale has 5° units and the intersection with the direction of view indicate the current pitch angle. The roll scale rotates and you can read off the current roll angle at the triangle.



The toolbar controls the camera. The GPS indicator tells you which location provider reported the current location. It is N for the network provider and G for the GPS provider. The provider is relevant for the image's location and you might want to wait for the GPS provider to get a more accurate location.

The augmentation tool lets you switch between augmented and plain image. When you switch on augmentation, then the directional indicators will be rendered onto the saved image.

The size tool lets you change the size of the image on disk. Large images consume a lot of memory. When augmentation is enabled, you need twice the size of the uncompressed image in RAM. If you receive messages telling you that you ran out of memory, reduce the image size.

The exposure tool lets you increase and decrease the exposure time.

The flash tool lets you change the flash mode.

The shutter button triggers capture of a single image. After the image has been captured and processed, you will see an iconic view of the image in the lower left corner. Tap on the image to switch to the pictures view.

Compass



An orienteering compass that shows magnetic north, the direction to the next waypoint and a few widgets from your dashboard.

The dashboard is below or on the right side of the compass, depending on the orientation of the device. The dashboard works exactly as the main dashboard and it shows the same widgets. Please refer to the section about the dashboard above for a detailed description.

The compass features a rotating scale, an adjustable scale and a direction indicator. Having a rotating scale means that there is no compass needle, but the scale is rotation so that N always points north. You read out the current heading angle at the top end of the thin orange vertical line.

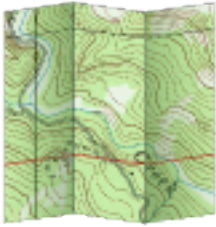


There is a secondary outer scale that is clamped to the rotating scale. You can drag the outer scale to rotate it to a different orientation. To rotate the outer scale so that it is aligned with the orientation of the device press the Align Scale button. = on the outer scale will then point into the direction you hold the device.

The direction indicator points to your current target. Use the Target Select button to change the target quickly.

The bottom edge of the screen has a small handle that you can drag up to get to the display options: You can switch the compass between magnetic and geographic orientation and you can switch to a marine compass. This is an alternative design of the outer scale optimized for sailing boats:

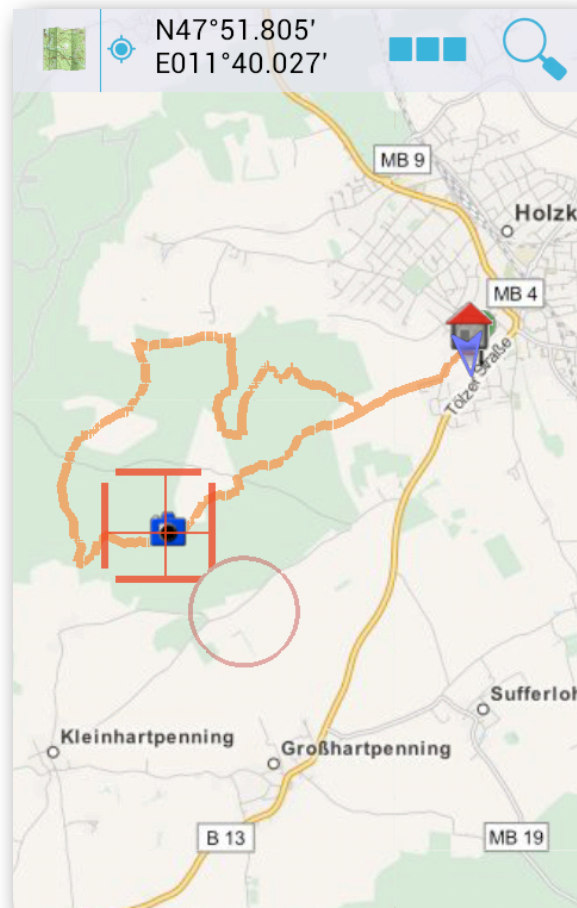




Portable Maps

Shows your waypoints, routes and tracks on a map from various data sources.

This view shows your waypoints, tracks and routes on top of a map. New map data loads from the internet while you zoom and pan the map. All downloaded data will be stored on your SD card for offline use. You can configure the amount of storage available for the cache in settings.



The Map

To pan the map, tap and hold the map and then swipe your finger to any direction. To zoom the map, pinch it with two fingers.

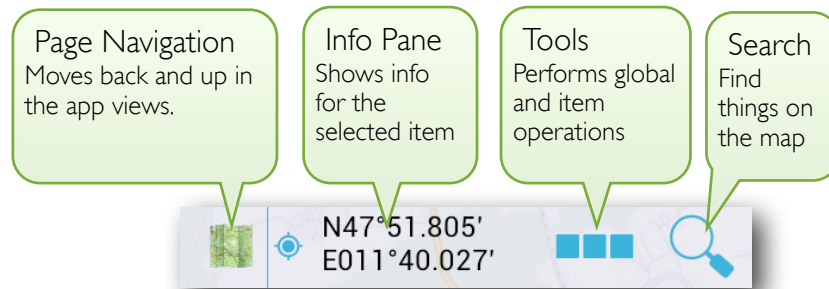
Cursors

You use cursors to interact with the map. You can either place cursors onto items on the map, such as waypoints or track or route elements or you can place a cursor on an arbitrary location. To create a new cursor, long press somewhere on the map until the cursor appears. Now drag your finger to move the cursor. As soon as the cursor detects an item under it, the cross lines will move onto the item.

There is one active cursor which is bolder than the others. You can have a maximum of 3 cursors, when you attempt to create the fourth cursor, the oldest cursor will be used instead.

The Toolbar

The map's toolbar looks sophisticated at first. There are many features condensed into a small area on your screen to leave more space for the map. The toolbar is divided into 4 sections:



The page navigation brings you back to the start screen of GPS Essentials. When there is a pending operation on the toolbar, such as a search, tapping on the icon cancels the operation.

The info pane shows information about the item under the active cursor. When you tap on the info pane, it shows a list of all available aspects. Tap on an aspect to load it into the info pane.

Icon	Name	Description
	Name	The name of the selected item, e.g. the name of the waypoint, route or track.
	Location	The location of the item or the plain cursor when there is no selected item.
	Altitude	The altitude of the item.
	Time	The time of the item, e.g. the track time for a track element.
	Target	The distance and bearing from the previous cursor location to the current cursor location.

The tools button shows global operations and operations specific to the currently selected item. If the buttons don't fit into the toolbar, you can scroll the actions pane to the left to make the overflowing buttons visible. Long tap on an tool button shows a toast with a brief description of the tool.

Exercises

Create Waypoint

1. Tap and hold on the map to create a new cursor.

2. Now drag the cursor onto the location where you want the new waypoint.
3. Tap on actions to show the actions pane.

4. Select the add tool  to create the waypoint.

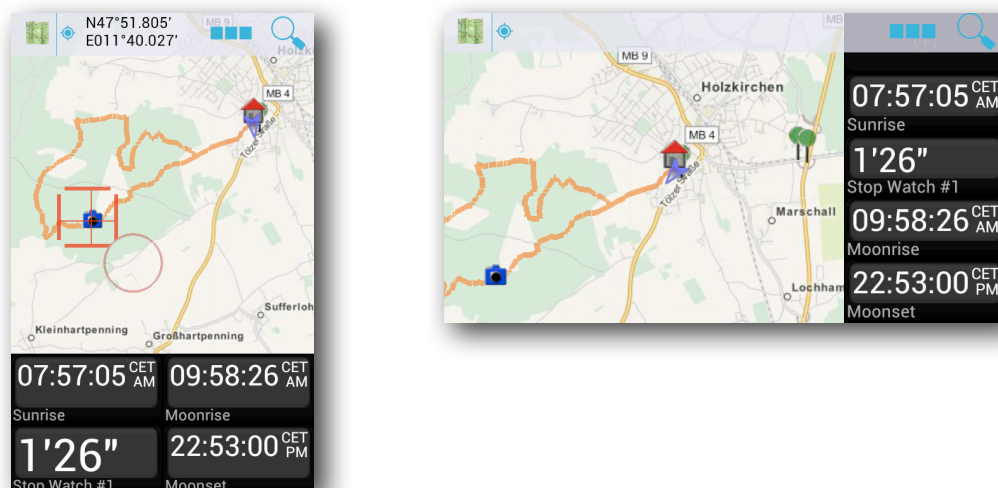
Measure the distance between two waypoints

1. Place a cursor onto the first waypoint
2. Place another cursor onto the second waypoint.
3. If the search or tools pane is active, tap on page navigation to cancel.
4. Tap on the info pane and select the target aspect.
5. While you are dragging the cursors, the info pane will keep its values updated so you can make successive measures quickly.

Dashboard Split View

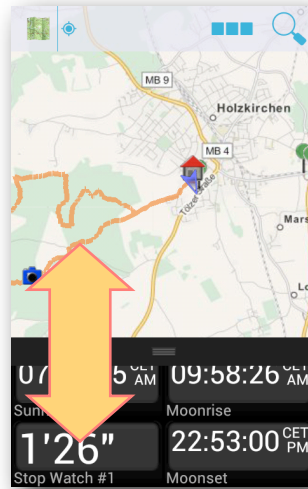
In the previous examples in this section we did not mention the part of your screen that shows a portion of the dashboard. Your screen is actually divided into a section that shows the map and a section that shows the dashboard.

Here is a split view that shows map and dashboard in both portrait and landscape oriented screens:



There is an invisible divider bar between the map and the dashboard. When you tap onto the border between the map and

the dashboard, the divider will become visible and you can drag it to make more room to either the map or the dashboard.

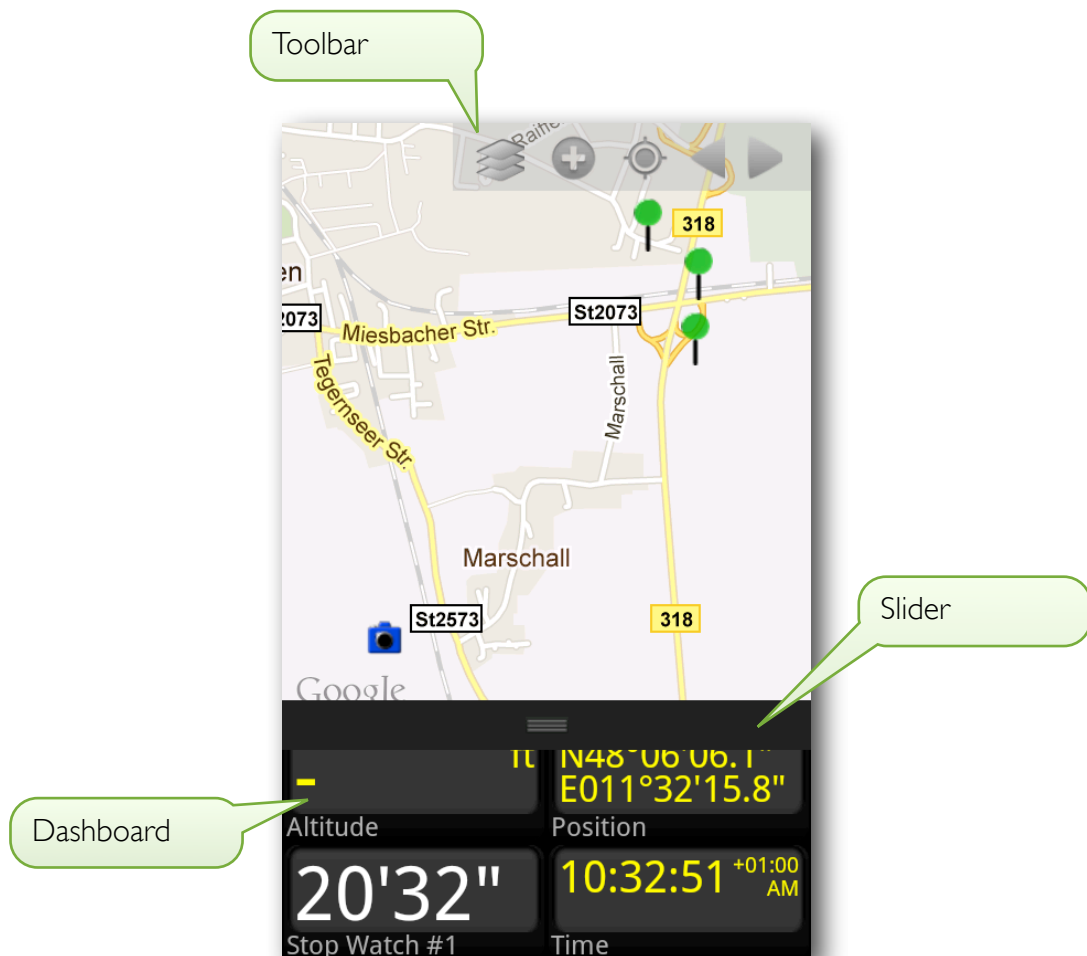




Google Map

A multi-layer map display that shows all your waypoints, tracks and routes.

The map view is probably the most versatile and complex view of GPS Essentials. It has a different layout in horizontal and vertical oriented screens and features a multilayer map and a dashboard. The dashboard works exactly as the main dashboard and it shows the same widgets. Please refer to the section about the dashboard above for a detailed description.



You can adjust how much space you want to use for the map and the dashboard by dragging the slider up and down (or left and right on horizontal screens). The slider appears when you tap on the screen near the separation between the map and the dashboard. You can drag the slider all the way down until the dashboard is completely hidden and you can also drag it all the way up to hide the map completely. Doing so can make it hard to find the slider again, remember that the map is always above the dashboard, even when it is hidden.

The Map

To pan the map, tap and hold the map and then swipe your finger to any direction. After you tapped onto the map, the zoom buttons appear on the bottom of the map. Press the left minus

button to zoom out and the right plus button to zoom in. You can also pinch to zoom by tapping and holding with two fingers at the same time and then moving the fingers together or apart¹.

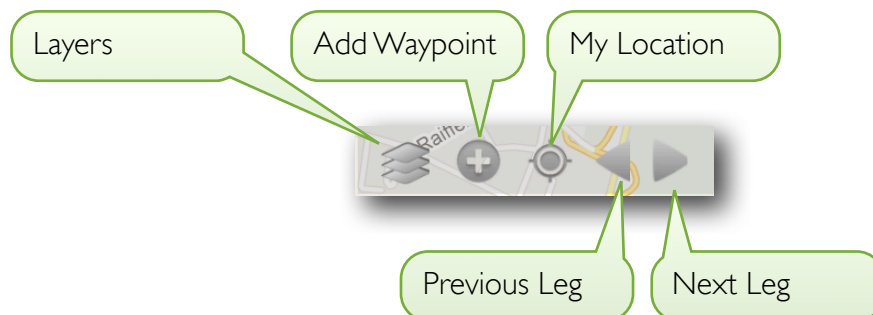
Waypoints

The map shows the waypoint icons at their location. If you tap on the icon, a popup menu appears to run operations on this waypoint:

Operation	Description
Use as Target	Creates a new route with this waypoint and starts the route. Please refer to the route section for a detailed description of routes.
Edit Details	Opens the waypoint editor. Please refer to the waypoint section for a detailed description.
Move	Relocates the waypoint. Tap onto the map to move the waypoint. If you know the coordinates of the waypoint, use the waypoint editor instead.
Delete	Erases the waypoint from the database.

Toolbar

The toolbar has a few buttons so that you can access common commands quickly.



The layers button shows the layers dialog so that you can show and hide layers. The following layers exist:

Layer Name	Description
Traffic	Shows traffic information. This layer is subject to local availability.
Recording Track	Shows the track that you are currently recording.

¹ Requires Android 2.0 or later

Layer Name	Description
Current Route	Shows the current route.
Satellite	Shows a satellite view of the ground.
Contacts	Shows the result of a contact search.
Search	Shows the result of a search.
Selected Track	Shows a selected track. This layer is only available when you opened the map using "Show on Map" in track view.
Selected Route	Shows a selected route. This layer is only available when you opened the map using "Show on Map" in route view.

To add a new waypoint, tap on the Add Waypoint button. Then tap on the location on the map to create a waypoint there. If you want to create a waypoint at your current location, tap the Add Waypoint button again.

Tap on the My Location button to pan the map to your current location. The map will follow your location when you move until you pan to a different location.

The Previous Leg and Next Leg buttons are only available when you have started a route. Refer to the section about routes to see how this works.

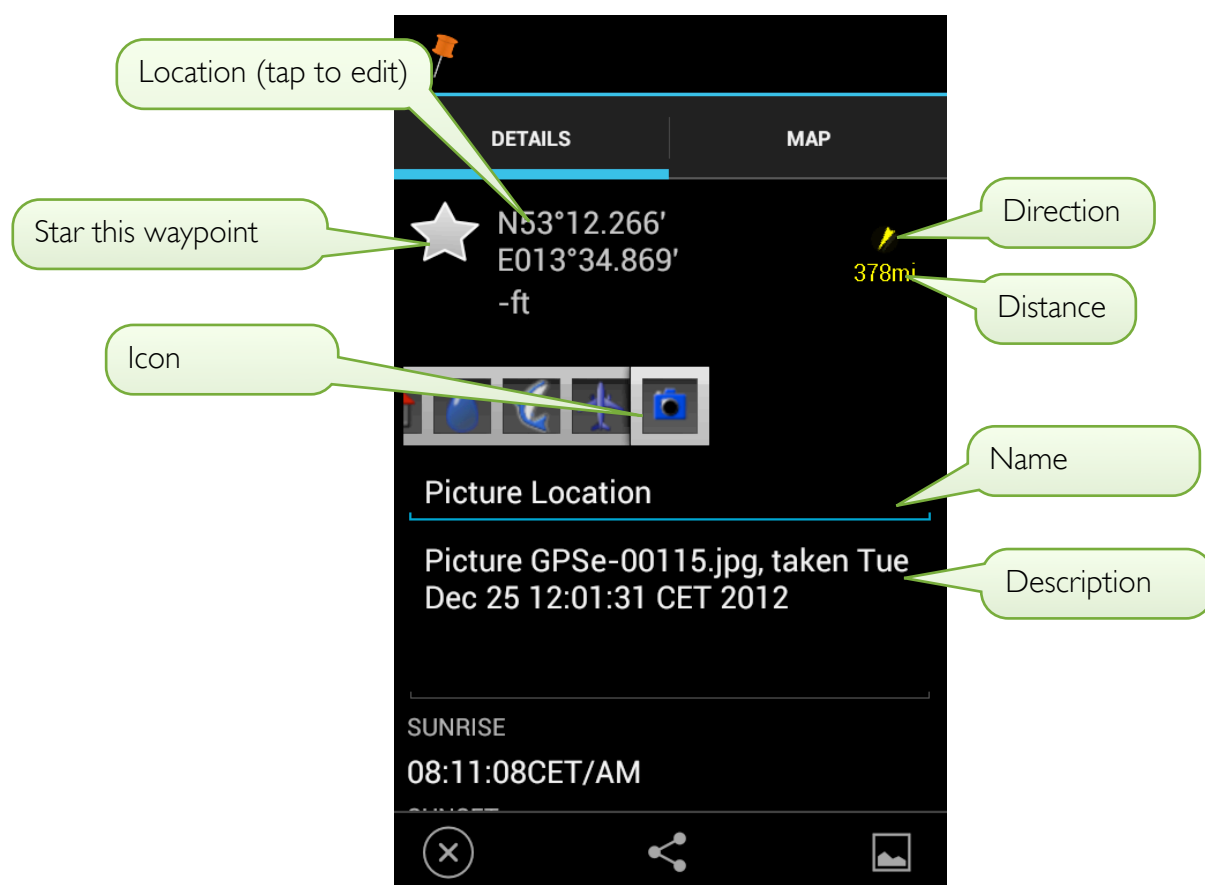


Waypoints

Waypoints denote a specific location on the earth. The waypoint list stores all waypoints and you can order the list.

The waypoint list shows all your waypoints. For every waypoint, you see the unique waypoint id, its icon, name, description, location, distance and direction.

To create a new waypoint, tap on Add Waypoint from the menu. This will create a waypoint that is initially empty. You can change the attributes of the waypoint and then press Back to get back to the list. Sometimes it is more convenient to create a waypoint in map view.



To edit the location of the waypoint, tap on the location on the top of the screen. The location editor consists of a spinner control to select the location format and some edit fields and buttons. When you change the location format, the location will be presented in the new format. Press Done to submit your changes.

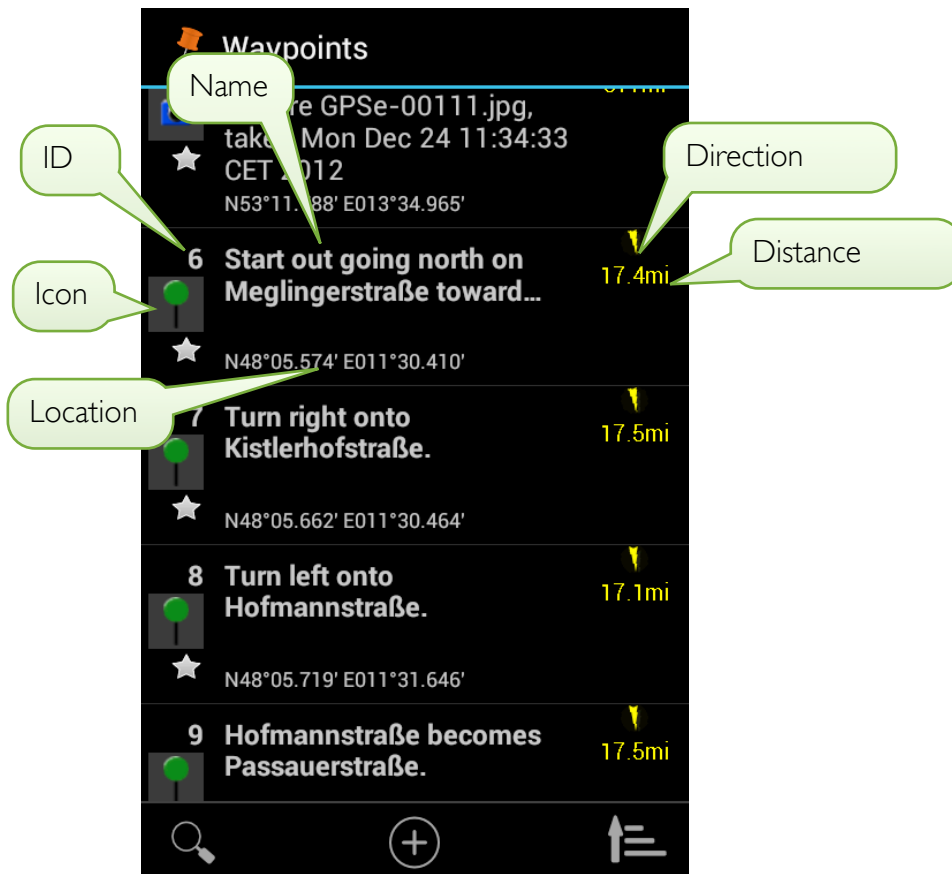
When you have entered some numbers into the location editor and then select another format from the spinner, GPS Essentials attempts to convert the location into the new format.

The following formats are supported:

Name	Format	Remarks
Degrees/Minutes/Fractions	DDMM.MM, e.g. 17301.04 means 172°1.04'	Notice decimal point is after the full minutes part
Degrees/Minutes/Seconds	DDMM.SS, e.g. 5703.12 means 57°3'12"	Notice the decimal point is after the minutes part
Decimal	D.D, e.g. 57.9234 means 57.9234°	
UTM	Zone/Northing/Easting	
MGRS	Grid Reference e.g. 4QFJ12345678	
OSGB36	Six Figure Notation, e.g. HU396753	

You can change the icon by swiping the icon list or tapping on any visible icon. The name of the waypoint is a short text string to denote the waypoint. Use the description field if you need to enter more text. The description field also supports tagging. Refer to the Tags section of this document for an explanation of this feature.

Here is how the waypoint list looks like:



On the right side of every waypoint, you see a small arrowhead and a length. This is the direction and distance from your current location to this waypoint. Like the widgets in dashboard, yellow means that the information is based on data that may be inaccurate (like a network location) while white means the data is up-to-date.



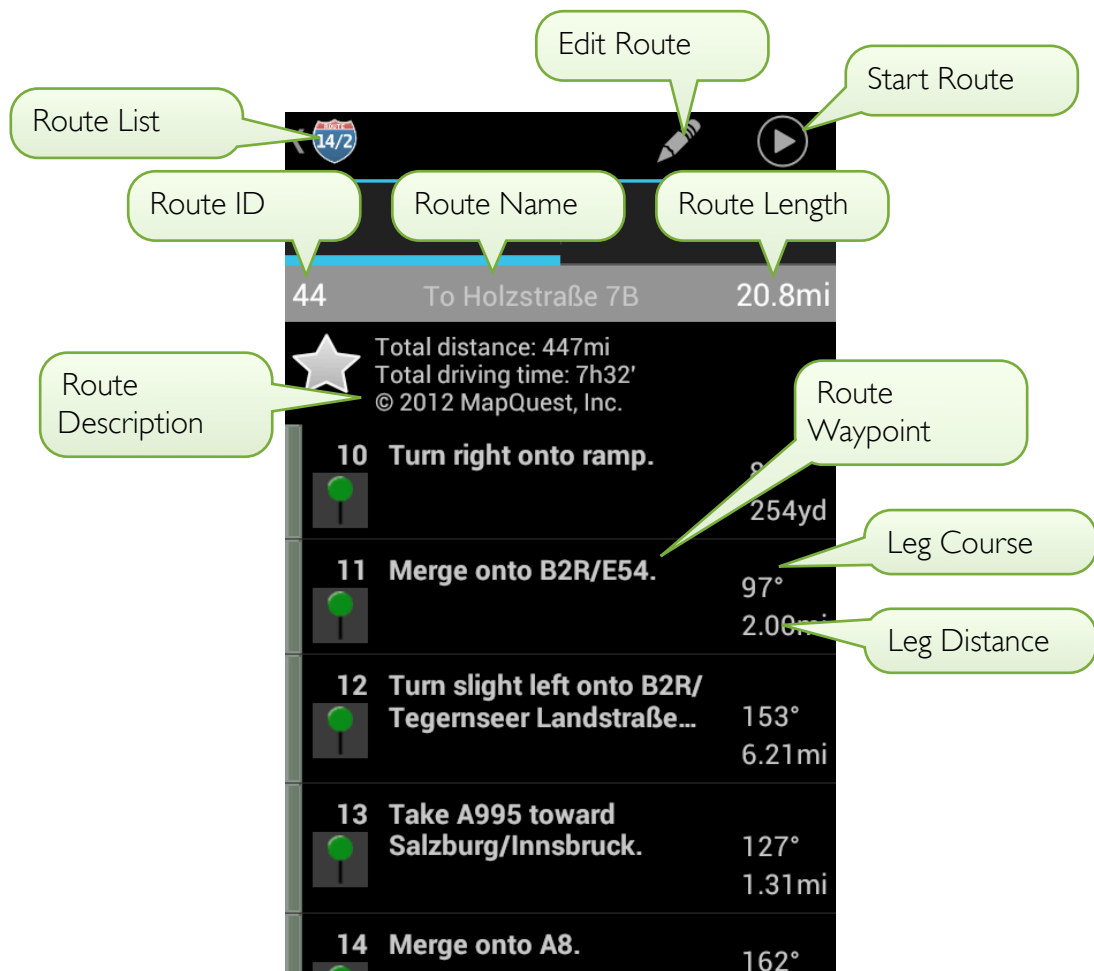
Routes

You use routes to plan a trip. Routes consist of zero or more waypoints in a specific order.

The route consists of legs that connect the waypoints. Notice that the route is referencing the existing waypoints. When you move a waypoint after creating the route, then the legs from the previous waypoint to the moved waypoint and the leg from the moved waypoint to the next waypoint will change.

When you open the routes activity, you see the route that is currently selected. If you open routes for the first time or if there is no selected route, you will see the list of all routes. To create a new route, select Add Route.

The route activity shows the current route information, its waypoints and a toolbar.

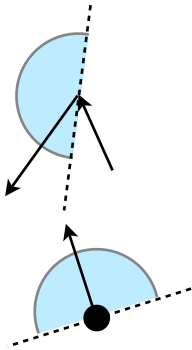


The Route Service

When you start a route, a service will run in the background to track route parameters, such as your current distance and to control voice out. Tap on "Start Route" to start the route service. This will target the selected route point or the first waypoint if you did not select one.

Notice: The route service will continue to run in the background when you switch off the device or start another app. This will also cause the GPS receiver to stay on and drain your batteries.

The map view toolbar contains additional arrow keys when you started a route. You can advance to other route points manually using these buttons. If you enabled “Auto Skip Target” in settings, the route service will automatically attempt to skip a route point when you are passing it.



Auto skip will only happen when you are closer than the auto skip distance away from the target point. You can set this distance in settings. Additionally, you have to cross the bisecting line between your current leg and the subsequent leg of the route. The drawing on the left illustrates the algorithm: Auto skip will occur as soon as you are within the blue cylinder.

When the first route point is active, auto skip will occur when you have passed a line perpendicular to the first leg, as illustrated in the drawing on the left.

Getting Directions

If you travel along roads, GPS Essentials provides a convenient way to create routes from one waypoint or your current location to another waypoint. When you tap on “Add” in route view, you can pick a start and end waypoint, and select “Roads” in the “Using” spinner. When you tap on “Create”, GPS Essentials reads turn-by-turn instructions from a web service and creates a route for you.



Tracks

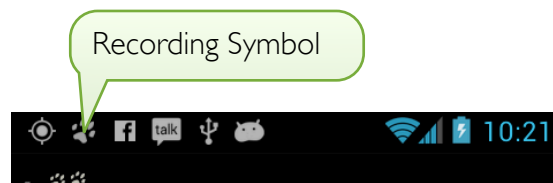
Tracks are records of your trips. When you started recording, GPS Essentials continuously saves locations to a track. You can review the track on the map, see it in chart view and export it to a file.

GPS Essentials can record your current location at specific intervals to the database. You can export these tracks to a KML file and import them into applications that support this file format.

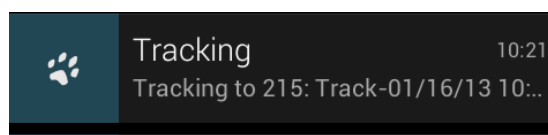
GPS Essentials has some build-in features to analyze tracks, for example you can see the altitude and speed over time and distance using the chart tool.

To start recording, tap on Tracks and then tap on Start from the toolbar. This will create a new track and immediately start recording. You might have to wait some seconds until a GPS fix is available. The track activity will update and show core information about the track. The Start button has changed to a Pause button and you can tap it to pause recording at any time. To continue recording, press Resume.

A small up arrow in the notification bar indicates that GPS Essentials is currently recording. This also means that GPS Essentials will keep running in the background and the GPS receiver will keep on running.



The notification bar contains an element like the following while you are recording a track. If you tap on this element, you'll get to the track activity.



You can only record to one track at a time. When you are already recording to a track and press Start or Resume the current recording will be paused.

Notice the difference between the recording track and the selected track. The recording track is the track that currently receives GPS locations. In the track list, the recording track is marked with a small up arrow below the track ID.

★	01-06...01-06	4850ft
212	Track-01/08/13 12:45:45	6.00mi 5215ft
★	01-08...01-08	
214	Track-01/15/13 6:27:32	24.0mi 4590ft
★	01-15...01-15	
215	Track-01/16/13 10:21:19	381yd 410ft
★	10:21...10:25	

Recording Symbol

Track recording will stop automatically when battery power is low.

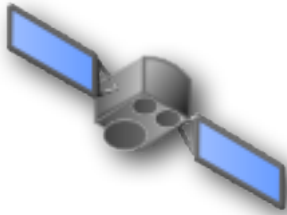


Share

Publish your data and collaborate on mapfinity.com. You can upload pictures, waypoints and your current location and view your content on the web and synchronize your content with other devices.

Mapfinity is our web service which is fully integrated into GPS Essentials. Once you created your free account, you can select data to synchronize. For more information about this service, please open mapfinity.com in your web browser.

Registration is a two step process. After specifying your email address, the Mapfinity server sends you a validation email with a link that you must click. You have to repeat these steps on every device that you intend to use. If you use the same email address, your devices will share a single account. You can add up to 5 devices to a single account.



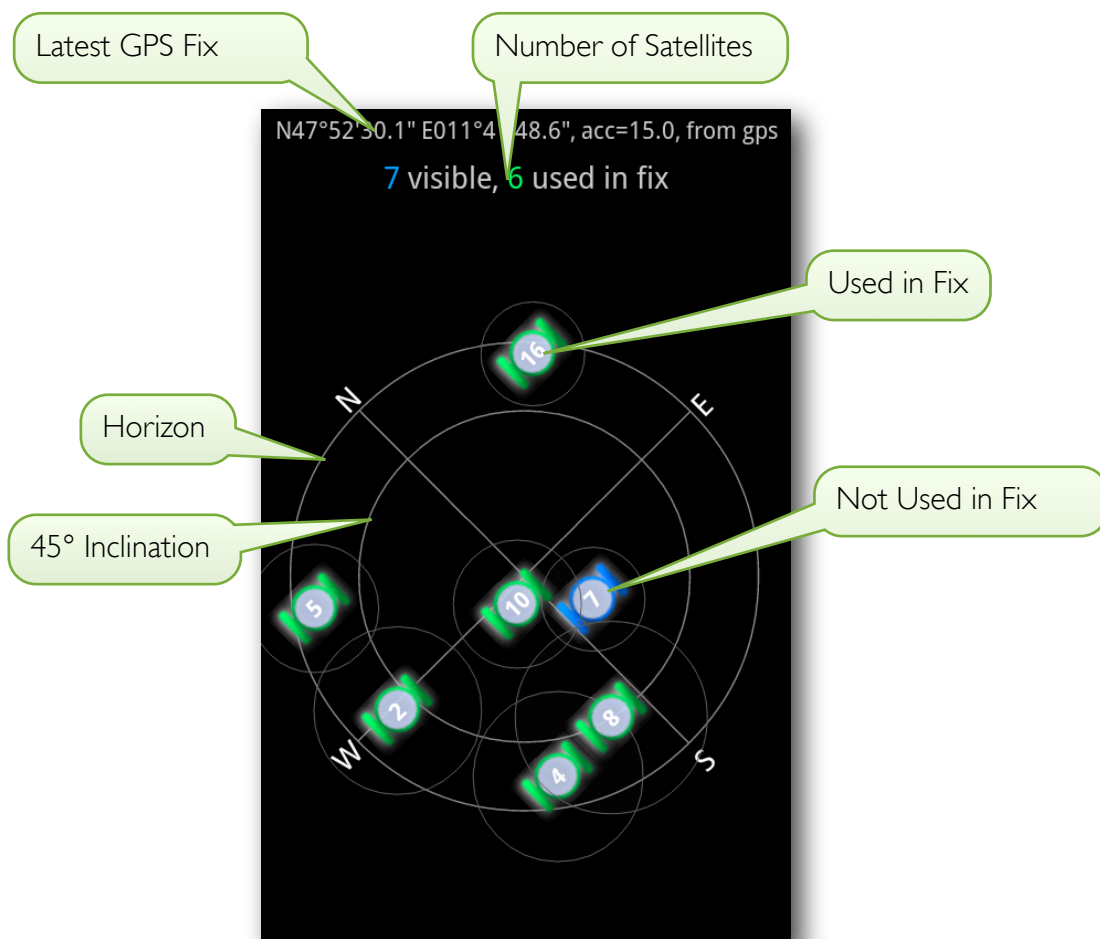
Satellites

This is a sky view of all GPS satellites that are visible to your device. This view is good in cases when you don't have a GPS location and you don't know why.

GPS receivers interpret signals coming from GPS satellites that revolve the earth. Before a GPS receiver emits a location (also called a GPS fix), it must receive signals from at least 4 satellites. There are many things that can prevent the GPS receiver from seeing the satellites. The lower the satellite is above the horizon, the longer its signals travel through the atmosphere so satellites high above the horizon usually have better signals. Thick clouds, especially thunderstorms can weaken the signal and so do windows, trees, vehicles and buildings.

The GPS antenna built into your Android device also plays an important role. Some devices work better than others.

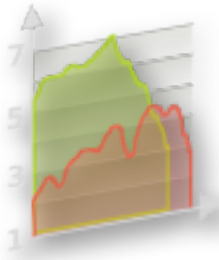
The satellite view helps you understand the quality of the signal you are currently receiving and gives you an idea if and how you can take measures to improve it.



The view is an abstract presentation of the earth around you and the satellites above you from the perspective of an extraterrestrial observer who is right above you. N, E, S and W indicates the cardinal directions. The outer circle is the horizon and the inner circle indicates an inclination of 45°.

Every satellite has a circle around it and the radius of this circle is an indicator for the signal to noise ratio.

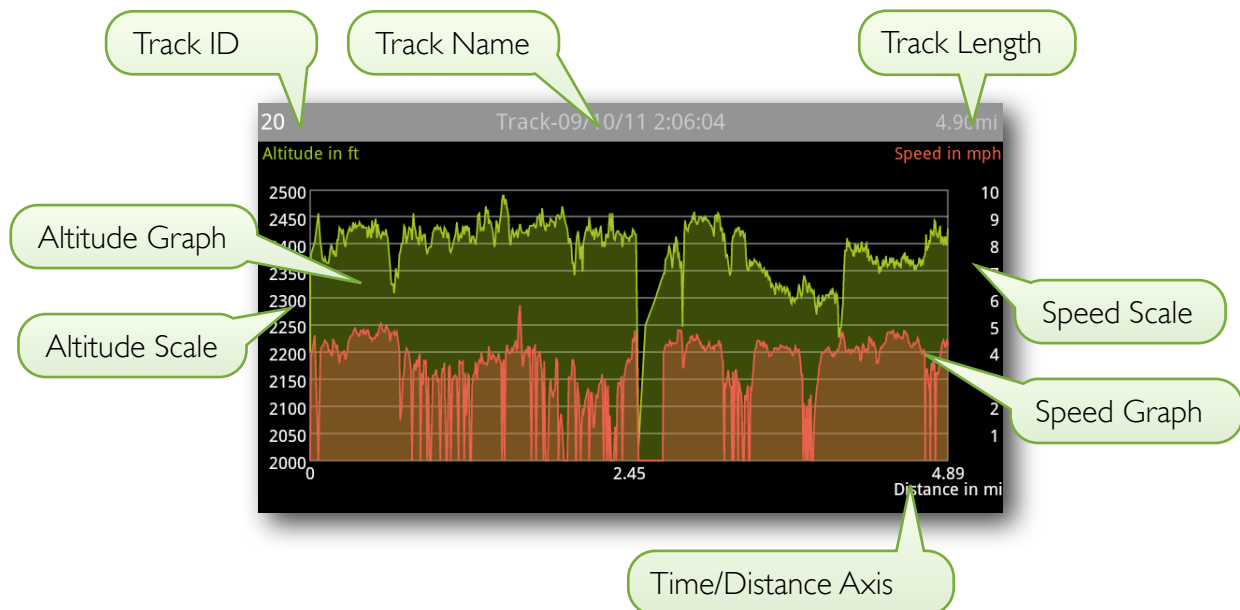
Satellites can be in view but not used for the GPS fix. This can happen if the signal quality is not good enough, usually because the signal to noise ratio of the specific satellite is too low. The text on the top of the screen indicate how many satellites are visible and how many satellites are used for the current fix. When enough usable satellites exist, the current fix and accuracy is displayed as well. Satellites used in the fix are green, unused satellites are blue.



Charts

Shows graphics about your performance on your track. You see curves for your speed and altitude. You can switch the horizontal axis between distance on the track and elapsed time.

The chart has a title that shows the track ID, its name and its current length. The chart area shows two overlaying graphs. The points on each graph share the same value on the horizontal dimension, but their value on the vertical axis is completely unrelated. The altitude graph has its scale on the left side and is green while the speed graph has its scale on the right side.



You can switch the horizontal axis between time and distance using the View command in the options menu.

The chart activity shows the selected track which might not be the track you are currently recording. If you want to see a different track select Select Track from the options menu. Selecting a different track will not affect the track you are currently recording.



Pictures

Shows, locates and shares the pictures that you took within GPS Essentials and associates waypoints.

In the pictures activity, you can swipe through all pictures that you took in GPS Essentials. These pictures are not related to the pictures that you took using the camera app of your device.

GPS Essentials can associate waypoints with your pictures. If you have a waypoint associated with a picture, you can select Show on Map from the options menu to see the waypoint on the map. This is usually the location where you took the picture but you can change this.

If you want to change the association, select Associate from the options menu. You can select a different waypoint from the waypoint list or pick one from the map.

Transferring Pictures

To share a single picture, select Share from the options menu. You will get a list of apps that you can use to share the picture. The list grows when you add more apps capable of sharing data.

All your pictures are in the folder `com.mictale.gpsessentials/images` on your SD card. You can delete pictures from this folder and you can even add new ones. GPS Essentials scans this folder regularly to see what's new.

Messages



Messages contain textual information about things that happened while GPS Essentials is running.

Messages are always listed by time with the latest message on top of the list and older messages further down. Unread messages are bold so that you can distinguish them from messages you have already read. The icon on your home screen will show the number of unread messages.

Messages older than 14 days that you have read are subject to garbage collection. From time to time, GPS Essentials will erase them so that your message list is not getting too long.

Currently, messages will be generated automatically based on specific events. One of our future plans is to support custom alerts that can generate messages.

Only important messages will be marked unread. Most automatically generated messages are already marked read, we don't want to steal your attention.

Messages can contain links and you can tap on them to follow. For example, when you started recording to a track, you can tap on this track right from the message.



Tags

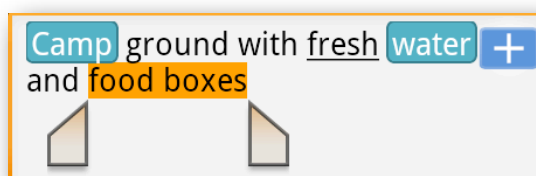
You use tags to structure your waypoints, tracks and routes. Tags are words or short phrases that you can attach to any one of these entities. The Tag view then groups the entities by your tags.

By means of tags, you can structure your data. Because tags can be assigned to any kind of element, tags make it easy to bind together different element types, such as routes and tracks.

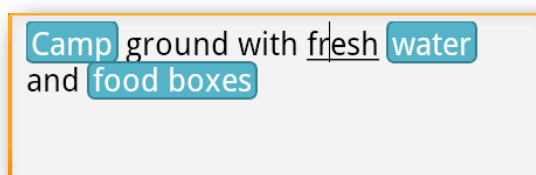
Tags should be very short terms that uniquely describe an aspect of the elements that you want to attach to them. Think of a tag as a label that you can attach to everything, but as opposed to a label, you can attach the same tag to many elements. E.g. if you are hiking, you will have many waypoints that denote camps. You can now add the tag Water to those waypoints that have water supply. When you open the water tag later, you'll see a list of all camps that have water supply.

You cannot add tags in tag view. To add a tag, open the element that you want to tag and open its editor. For example, if you want to tag a waypoint, open the waypoint list and tap on the waypoint. Enter the text of your tag into the description field and select it. On newer devices, you can tap and hold a word and then use Select word from the popup menu to quickly select a term. As soon as the selection markers appear, you will also notice a plus button on the top right corner of the text box. If you tap on this button, the selected term will be converted into a tag for the element that you are currently editing.

Here is an example of how the edit box looks like if you already created tags for Camp and water and you just selected food boxes.



After creating the tag, your final description might look like this:





Settings

Configures all global settings in a single place.

The configuration is organized into sections. Tap on the setting to change it. Most of the settings have a list so that you can choose the desired value. If the setting is a simple yes/no choice, you can toggle a checkbox.

Setting	Description
GPS Update Interval	Selects the interval of GPS fixes. Faster updates increase readability but consume more battery. If you use the dashboard, it is recommended to use "Fastest".
Tracking update interval	Selects the interval of fixes saved to the recording track. Use bigger intervals to preserve space. If you select an interval that is shorter than the GPS update interval, then the GPS update interval will be used instead.
Widget Size	Selects the size of the dashboard widgets.
Widget Theme	Selects the theme used to render widgets.
Units	Selects a schema of units to show values.
Position Format	Selects the format of position values. You can choose between: <ul style="list-style-type: none">• Degrees, Minutes, Seconds• Degrees, Minutes, Fractions of minutes• Decimal• UTM• MGRS• OSGB36
Bearing	Selects if bearings should be geographical or magnetic.
Temperature	Selects the temperature unit.
Auto Skip Target	If checked, the route will automatically advance to the next route point when you pass the target.

Setting	Description
Auto Skip Distance	Specifies the maximum distance to skip a route point. "Auto Skip Target" has to be checked for this value to take effect.
Speak Route Info	Reads the target waypoint name as you approach it on a route.
Announcement Proximity	Sets the distance for "Speak Route Info"
Device ID	Selects if you want to save the device ID to the pictures. If you select this option, the unique device ID will be stored in the Exif data of all pictures you take in GPS Essentials
Location	Selects if you want to save the current location to the pictures. If you select this option, the location will be stored in the Exif data of all pictures you take in GPS Essentials
Keep Screen On	Usually, the screen will switch off after a specific period of time to preserve battery. With this setting, you can switch this off when GPS Essentials is running in the foreground.
Error Reporting	Selects the desired strategy to send error reports. Error reports are generated automatically when something unexpected happens in GPS Essentials. Sending bug reports allows us to prevent this error in future releases. Check the appendix for a typical error report.



Donate

Tells you how you can support development and maintenance.

Developing and maintaining GPS Essentials is a lot of work. When you donate, you support this effort. You will not find any additional features in GPS Essentials when you donate, but we'll buy some time from the money you send and turn it into new features.

Our way to say thank you to those who donate is that we switch off ads when you installed the donation plugin.

The easiest way to install the donations plugin is to scan the following QR code with your device:



market://details?id=com.mictale.gpsessentials.plugin.donation
<https://play.google.com/store/apps/details?id=com.mictale.gpsessentials.plugin.donation>

Appendix A: Error Report

This is how a typical error report looks like:

```
Created: Fri Nov 11 00:41:31 GMT+01:00 2011
com.mictale.gpsessentials, version 2.6.13(90)

By: a5cba8536dad396b
Device: cresco
Fingerprint: google/soju/cresco:2.3.6/GRK39F/189904:user/release-keys
Build: GRK39F
Model: Nexus S
Product: soju
Android Version: 2.3.6

Font scale: 1.0
Keyboard: 1
Locale: en_US
MCC: 262
MNC: 3
Navigation: 1

Display
  Density: 1.5 (234.46153 x 236.27907 dpi)
  Size: 480 x 800 px

External Storage: mounted

SD-Card Path: /mnt/sdcard
  Total: 13624MB (14286163968)
  Available: 4831MB (5066543104)

Data Path: /data
  Total: 1007MB (1056858112)
  Available: 665MB (697585664)

Free memory: 4067160
Max memory: 33554432
Total memory: 8527840

Number of active threads: 15
Thread 41='GameLoop', TIMED_WAITING (priority=5)
Thread 37='android.hardware.SensorManager$SensorThread', RUNNABLE (priority=5)
Thread 33='GameLoop', WAITING (priority=5)
Thread 30='pool-1-thread-1', WAITING (priority=5)
Thread 23='Binder Thread #3', RUNNABLE (priority=5)
Thread 18='WebViewWorkerThread', RUNNABLE (priority=5)
Thread 17='http3', WAITING (priority=5)
Thread 16='http2', WAITING (priority=5)
Thread 15='http1', WAITING (priority=5)
Thread 14='http0', WAITING (priority=5)
Thread 12='CookieSyncManager', RUNNABLE (priority=5)
Thread 11='WebViewCoreThread', RUNNABLE (priority=5)
Thread 9='Binder Thread #2', RUNNABLE (priority=5)
Thread 8='Binder Thread #1', RUNNABLE (priority=5)
Thread 1='main', RUNNABLE (priority=5)
An exception in thread Thread[main,5,main] (1)

A top-level exception com.mictale.view.BindingException
com.mictale.view.BindingException: java.lang.IllegalArgumentException: The
longitude 4851.0078125 is out of range. Please enter a value in the range
[-180, 180).
```

```

    at com.mictale.view.Binding$1.onClick(Binding.java:185)
    at android.view.View.performClick(View.java:2485)
    at android.view.View$PerformClick.run(View.java:9080)
    at android.os.Handler.handleCallback(Handler.java:587)
    at android.os.Handler.dispatchMessage(Handler.java:92)
    at android.os.Looper.loop(Looper.java:130)
    at android.app.ActivityThread.main(ActivityThread.java:3683)
    at java.lang.reflect.Method.invokeNative(Native Method)
    at java.lang.reflect.Method.invoke(Method.java:507)
    at com.android.internal.os.ZygoteInit
$MethodAndArgsCaller.run(ZygoteInit.java:839)
    at com.android.internal.os.ZygoteInit.main(ZygoteInit.java:597)
    at dalvik.system.NativeStart.main(Native Method)
Caused by: java.lang.IllegalArgumentException: The longitude 4851.0078125 is out
of range. Please enter a value in the range [-180, 180).
    at com.mictale.util.UTM.latLonToUTM(UTM.java:378)
    at
com.mictale.gpsessentials.format.UTMPositionFormatter.formatPosition(UTMPosition
Formatter.java:47)
    at
com.mictale.gpsessentials.format.UnitFormatter.formatPosition(UnitFormatter.java
:176)
    at
com.mictale.gpsessentials.waypoints.EditWaypointActivity.updatePosition(EditWayp
ointActivity.java:176)
    at com.mictale.gpsessentials.waypoints.EditWaypointActivity.access
$1(EditWaypointActivity.java:174)
    at com.mictale.gpsessentials.waypoints.EditWaypointActivity
$1.onSave(EditWaypointActivity.java:222)
    at
com.mictale.gpsessentials.waypoints.EditLocationDialog.onDoneClicked(EditLocatio
nDialog.java:134)
    at java.lang.reflect.Method.invokeNative(Native Method)
    at java.lang.reflect.Method.invoke(Method.java:507)
    at com.mictale.view.Binding$1.onClick(Binding.java:176)
    ... 11 more

```

Appendix B: Versions

GPS Essentials receives regular feature additions. Since we deployed GPS Essentials to Android Market for the very first time, we pushed 46 updates at the time of this writing.

Every release has a unique version number that consists of three parts: A major version, a minor version and a build number. The major version number changes when something dramatically changes in GPS Essentials and we went from 1 to 2 when we added tracking because this was a big step ahead. The minor version we increment whenever a new piece of functionality was added that we think is worth mentioning. While we add new features, we are also maintaining the app to remove bugs, make it more stable and support specific devices. Every time a new release comes out, we increment the build number so that we can distinguish the releases.

The minor version number also indicates the maturity of the release. If the number is odd, then we are working on the development branch and the release might contain glitches and hickups, but all brand new features are in. You will not see these releases on Android Market, if you want to have these releases you have to go to <http://www.mictale.com/gpsessentials/download>. From time to time, we run the development branch through excessive testing and the result is a stable release that we push to all distribution platforms.

Appendix C: Contacts Plugin

The contacts plugin is a supplemental package that you can install on your device. It is available on Android Market and from the download site <http://www.mictale.com/gpsessentials/download>.

To use the contacts plugin, open map view and select *Find Contact* from the options menu. You can select an entry from your phone's contact list. GPS Essentials will attempt to resolve the postal addresses of this entry to locations and show you these locations. Tap on a location to convert it into a waypoint.

Use this QR code to install the plugin:



market://details?id=com.mictale.gpsessentials.plugin.contacts
<https://play.google.com/store/apps/details?id=com.mictale.gpsessentials.plugin.contacts>